

### REMARKS

This is in response to the final rejection dated July 31, 2009. All the features of the amended claims are fully supported by the originally filed application and drawings. Thus, the amendments do not add new matter to the application. Upon the entry of the amendments, Claims 1-5 and 7 are pending in this application. Applicant respectfully requests the entry of the amendments and reconsideration of the application.

#### Claim Rejections under 35 U.S.C. §112, 2nd

The Examiner rejected Claim 1 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In response, Applicant has amended Claim 1 to meet the written requirements. Withdrawal of the rejection is respectfully requested.

#### Claim Rejections under 35 U.S.C. §103

The Examiner rejected Claims 1-5 and 7 under 35 U.S.C. §103(a) as being unpatentable over Blackburn '109 (US Patent 2,584,109) in view of Blackburn '110 (US Patent 2,584,110), Faessle (US Patent 4,541,471) and Nemeskeri (US Patent 6,918,753). Applicant respectfully disagrees with the Examiner.

#### Claim 1 of the Instant Application (*Emphasis added*)

An apparatus for manufacturing ceramic ware, the apparatus comprising:

a gypsum mold having voids inside, wherein the voids are formed completely to outside of the gypsum mold by blowing air into the gypsum mold during solidifying;

a first mold housing and a second mold housing, each of which includes a housing frame, a wire net formed in the housing frame so as to support the gypsum mold, an air ejection tube fixed to the wire net and formed of fibroid material so as to eject the air through the voids toward the inside of the gypsum mold, and an air supply hole formed in the housing frame and connected to the air ejection tube so as to supply the air;

a first support means for fixedly supporting the first mold housing;

a second support means for fixedly supporting the second mold housing;

a first drive means for moving up and down the first support means;

a second drive means for moving back and forth the second support means;  
an air supply means for providing the air to the air supply holes of the first and second mold housings; and

a control means for regulating the amount of the air, the air supply time, and the pressing intensity between the first and second mold housings,

wherein the control means is configured to start the air supply means at a moment of ejecting the air into the gypsum mold creating an air film between a casting clay and the gypsum mold during pressing and casting, wherein the air ejection tube is configured to allow free ejection of air from inside to the outside of the gypsum mold through the voids.

The instant application is directed to an apparatus and method for manufacturing ceramic ware, which comprises a gypsum mold having voids inside, wherein the voids are formed completely to outside of the gypsum mold by blowing air into the gypsum mold during solidifying and an air ejection tube fixed to a wire net so as to eject the air through the voids toward the inside of the mold creating an air film between a casting clay and the mold, and the air ejection tube is configured to allow free ejection of air from inside to the outside of the mold through the voids. (See Paragraphs [18] and [62], for example)

In contrast, Blackburn '109 discloses a mold and method for molding ceramic ware, in which the clay object is separated from the faces of the mold by the direct application of fluid pressure against the war through a pressure conduit extending through a section of the mold to the surface thereof. (See col. 2, lines 3-19 and col. 4, lines 40-45)

However, Applicant respectfully submits that there is a distinct difference in the structures and functions between Blackburn references and the present invention.

In the present invention, the apparatus comprises i) a gypsum mold having voids inside, wherein the voids are formed completely to outside of the gypsum mold by blowing air into the gypsum mold during solidifying, and ii) an air ejection tube for ejecting the air toward the inside of the mold creating an air film between a casting clay and the mold during pressing and

casting, such that an air film is forming between the casting clay and the gypsum mold through the voids.

Furthermore, the apparatus according to the present invention comprises a control means configured to start the air supply means the moment to eject the air into the gypsum mold creating an air film between a casting clay and the gypsum mold during the pressing and casting. The casting clay is *being* compressed and cast *while* the air is ejected into and through the gypsum mold forming an air film between the casting clay and the gypsum mold. The air is acting on the casting clay and the air film is between the clay and the mold while the clay is being cast.

In contrast, in Blackburn '109, the direct application of fluid pressure against the ware is simply for separating the clay object from the mold by pushing after casting was done already. The clay object is already made, and Blackburn's mold or method intervenes at the scene when the already-made clay object is to be separated from the faces of the mold by shrinkage inherent in the object upon losing its water of plasticity. (See col. 1, lines 7-10; it is about a prior art, which is exactly what Blackburn '109 tried to solve.)

Furthermore, even though Blackburn '109 discloses a conduit (23) for blowing into the mold through pores in the material, the pores were formed in the process of hardening upon standing. (See col. 4, lines 14-18)

Whereas, in the present invention, the voids are formed completely through inside to the outside in the gypsum mold by blowing air into the gypsum mold during solidifying. (See paragraph [62], for example)

Faessle does not cure the deficiency of Blackburn '109. That is, Faessle's process also is about removing the pattern by the introduction of compressed gas. The compressed gas does *not* do anything in the process of casting, but in the process of removing after casting. (See Abstract, col. 2, lines 13-22; steps (b) and (c))

Nemeskeri discloses a dual-mold thermoforming press having a frame, but still does not cure the deficiencies of Blackburn '109 and Faessle, either. Nemeskeri just discloses molding housings which can move up/down and back/forth in order to allow for easier removal of the molded piece.

Therefore, Blackburn, Faessle, Nemeskeri, or their combination does *not* teach or suggest the inventive features of Claim 1 of the present invention.

That is, the cited references do *not* teach:

- i) a gypsum mold with voids formed through the gypsum mold by blowing air into the gypsum mold during solidifying; and
- ii) a control means for starting the air supply means at a moment of ejecting the air into the gypsum mold creating an air film between a casting clay and the gypsum mold during pressing and casting.

Especially, Blackburn references do *not* teach or suggest the above features, which are structural differences. Also, as can be seen in Fig. 5 of Blackburn '109, the conduit (23) is provided in the mold, not in the housing frame outside the mold as in the present invention.

Applicant respectfully submits that there are distinct structural differences between the prior arts and the present invention.

Claim 3 of the Instant Applicatin (*Emphasis added*)

A method for manufacturing ceramic ware using the apparatus of claim 1, the method comprising:

- a step of preparing a lump of clay, wherein the clay is kneaded such that air bubbles are removed from the clay;
- a step of cutting the clay such that the clay is divided into slab clays of a suitable size for the mold housing;
- a step of inserting the slab clay into the mold housing;

a step of pressing and casting the slab clay into a desired clay piece while continuously supplying the air inside the mold housing creating an air film between the clay and the gypsum mold having voids formed through inside to outside;

a step of drying the clay piece;

a step of decorating the clay piece, wherein the clay piece is engraved with a pattern, and wherein glaze material is applied to the clay piece; and

a step of firing the clay piece.

For similar reasons as discussed above, Claim 3 is *not* obvious over the cited references. That is, Blackburn references do *not* disclose anything about the step of pressing and casting while creating an air film between the casting clay and the gypsum mold by continuously supplying air between the casting clay and the gypsum mold through the voids formed through the gypsum mold.

Because of the air film between the casting clay and the gypsum mold while pressing and casting, there is no need of any step of separating the cast clay from the mold as in the prior arts.

Therefore, Claim 3 is *not* obvious over Blackburn '109, Blackburn '110, Faessle, Nemeskeri, or their combination.

Claim 4 of the Instant Application (*Emphasis added*)

The method of claim 3, further comprising:

a step of fabricating prototype clay from suitable clay;

a step of placing an overturned mold housing on the prototype clay;

a step of pouring gypsum sludge into the mold housing;

a step of supplying the air so as to produce the voids in the gypsum mold, while more than fifty percent of the gypsum sludge is solidified into the gypsum mold; and

a step of removing the prototype clay from the gypsum mold.

As discussed above, the voids are produced in a gypsum mold while more than fifty percent of the gypsum sludge is solidified into a gypsum mold, and such voids or the air supply holes are used to create the air film between the casting clay and the gypsum mold. Applicant respectfully submits that this is *never* taught or suggested by the cited references. In the cited references, the compressed gas was used to remove the pattern from the mold, *not* for creating an air film between the pattern and the mold during casting.


Therefore, Blackburn '109, Blackburn '110, Faessle, Nemeskeri, or their combination does not teach or suggest the inventive features of the independent Claims 1-5 and 7. Withdrawal of the rejections to the Claims is respectfully requested.

### Conclusion

In view of the amendments and remarks made above, it is respectfully submitted that Claims 1-5 and 7 are in condition for allowance, and such action is respectfully solicited, if required, under *the Examiner's Amendment*. If it is believed that a telephone conversation would expedite the prosecution of the present application, or clarify matters with regard to its allowance, the Examiner is invited to contact the undersigned attorney at the number listed below.

Respectfully submitted,

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